

NORTH
COAST
AMATEUR
RADIO
CLUB

NORTH COAST COMMUNICATOR

NOVEMBER 1984

N.C.A.R.C.
P.O. BOX 30529
PARMA, OHIO 44130

EDITOR
N8ETY

Asst.Editors
Technical
KD8EQ

Swap & Shop
N8ETP

Sunshine
N8ETP

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DICK KD8EQ
SHIRLEY KA8Y
DAVE KB8TT
TOM N8ETP
JEFF KROJ
LEE WASERA
ED N8ERA

CODE PRACTICE
SUNDAY EVENINGS
8:00p.m. 145.29

INFORMAL NET
SUNDAY EVENINGS
9:00p.m. 145.29

The net includes:
"WESTLINK REPORT"
ARRL BULLETINS
N8ETP REPORT

NORTH COAST A.R.C. General Meeting Notice -
THURSDAY 7:30 PM, DECEMBER 13, 1984 (See Map Enclosed)

NORTH COAST A.R.C. Board of Directors Meeting -
SUNDAY at 3 PM, DECEMBER 9, 84 at Glenn's (WD8OMW) QTH

NORTH COAST A.R.C. CHRISTMAS BANQUET - READ NOW

DEADLINE FOR ADVANCE TICKETS
IS DECEMBER 3rd -

NOARS (Northern Ohio Amateur Radio Society) has invited NCARC to use their Christmas Banquet as our own, interested parties should reserve tickets NOW. Cost is \$15 per person. Contact Rick Wells (K8SCI) or Pauline Wells (KA8FOE) at 779-8999.

Location: GARGUS HALL, LORAIN, OHIO (Just off of Detroit Rd and West of Route 57).

When: Saturday, December 8th, 1984

Time: (starting times) cocktails 6:30 to 7:30, dinner 7:30 to 8:30 dancing 9:00 to ???, prizes all night.

Entertainment: Music by Tim Plas and the Suburbanites

Menu: Roast Beef, Stuffed Cabbage, Chicken, Tossed Salad, Corn Buttered-Parsley Potatoes, Green Beans with cheese and mushroom sauce, rolls, 2 jello's, 3 dessert's, coffee, tea and milk. NOARS is providing soft drinks, beer, and wash for your B.Y.O.B.

Prizes: ICOM 4-AT TRANSCEIVER W/CHARGER, COMMODORE 64 COMPUTER, 12" PORT. TV, CORDLESS PHONE, AM-FM CLOCK RADIO, AND MORE.

MIDWAY A.R.C. TELECONFERENCE NET - SUN DEC 2, 84 AT 7 PM EST
PACKET RADIO OVERVIEW AND PERSPECTIVE (146.76 Repeater)

CONGRATULATIONS to TONY RAMAMO (KA8IMU) who won the Bird Model 43 watt meter at the Oct 11th NCARC Fall Raffle drawing. NCARC sold 476 raffle tickets which paid for all of the raffle expenses, and also fully replaced the funds expended for the radio that walked away during NCARC Field-Day 84.

SWAP AND SHOP -

ICOM BP-3 battery back with charger \$25, contact
Dick Scheuering (K8QNK) at 741-7121.

ICOM BP-2 battery packs (have two) \$15 ea., contact
Tom Rudman (KD8EX) at 933-8753 (Avon Lake).

A SPECIAL THANKS to the following who have recently helped in recent North Coast A.R.C. Public Service Events:

North Olmsted 5 Mile Homecoming Run, August 26, 84

N8ETP	TOM KOPCAK	N8FCQ	CASEY NOWAKOWSKI
KA8CKZ	BILL JONES	N8DZO	JACK ZIGON
N8ETY	DAVE KIFER	WD8OMW	GLENN CHRISTMAN
KA8FOE	PAULINE WELLS	K8SCI	RICK WELLS.

Willow Run Horse Trials, Twinsburg, Oh. October 14, 84

N8ERA	ED ZORN	N8FCQ	CASEY NOWAKOWSKI
K9SSL	MIKE WALKER	KV8M	TOM KAPSAR
WB8OGN	JACK SKINNER	N8ETY	DAVE KIFER
K8QNK	DICK SCHEUERING	KA8CKZ	BILL JONES
KA8FOE	PAULINE WELLS	K8SCI	RICK WELLS.

Cleveland West 13.1 Mile and 5K Classic November 18, 84

N8ETY	DAVE KIFER	KA8CKZ	BILL JONES
N8ETP	TOM KOPCAK	K9SSL	MIKE WALKER
N8FCQ	CASEY NOWAKOWSKI	KA8FOE	PAULINE WELLS.
K8SCI	RICK WELLS.		

UPCOMING CODE AND THEORY CLASSES -

North Ridgeville Middleschool, starts Jan 09, 85 - Novice and Tech. sponsored by NRRA, contact the following for more info: K8JK JULIUS at 327-8182, or WD8OYO DAVE at 327-3914.

Parma Valley Forge High School, starts Jan 29, 85 - Novice up thru Extra Class. More info, contact WB8UBS FRED at 524-1995.

WELCOME NEW North Coast Members - W8GNB ED EHRBAR and KB8ZA JIM BAIRD

NCARC SURVEY SHEET RESULTS -

The results are planned to be given in the next Communicator, if you haven't already sent it in, please do so (see Sept 84 Communicator for the survey sheet) or bring it in to the Dec 13 NCARC meeting, thank you.

MINUTES FROM N.C.A.R.C. Mtg. 10/10/84

The meeting was called to order at 7:40 p.m. by Rick K8SCI. The Treasurer Report was not given, Glenn WD8OMW was not present. The minutes from the previous mtg. were passed as printed in the newsletter. There was no old business to be discussed. Rick K8SCI made comments about the club donating to Westlink" the sum of \$50.00 and recommended that the club support AMSAT by becoming a member. No votes was needed, but the members in attendance agreed. Rick briefly outlined the trustees mtg. Jeff KROJ asked about the club becoming an ARRL member, Rick explained that in order for the club to become an affiliate club, membership of the club also has to have a 50% ARRL membership within its own ranks. The club has not yet reached that 50% level but this is something that all should work on.

Dave KB8TT asked for a summary of the clubs effort to replace K8ATQs' FT-7 which was missing after FIELD DAY 84. Rick explained that the rig had been replaced. The club reimbursed Rol the fair market value and Rol has since found and purchased a replacement. The money left over, Rol returned to the treasury. The members felt much thanks to Rol for his honesty.

Rick then started the last chance ticket sales for the BIRD 43 WATTMETER Raffle and the ticket sales for the 50/50 drawing. Winner of the 50/50 drawing was Paulene KA8FOE. The winner of the BIRD WATTMETER was Tony-KA8IMU. The first winner, Karen KA8LIH redonated the prize for redraw. Casey N8FCQ announced the West Park Radio Ops Auction to be held at Clague Park cabin.

Jeff KROJ spoke on the possibility of a club project, to be exact he was interested to know if anyone would like to get involved in 10mtr FM and maybe a 10 FM Repeater.

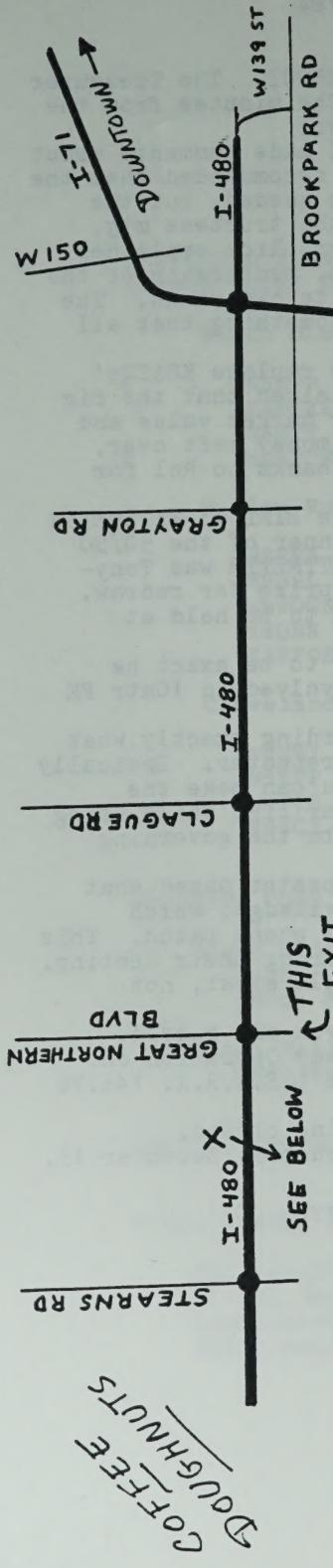
Rick mentioned that he had telephoned the F.C.C. regarding exactly what is and is not permitted regarding Autopatches on the repeater. Basically what the entire conversation came down to is... If you can make the repeater, you can use the patch regardless of phone tariffs. While using the 145.29 repeater and autopatch, common sense will be the governing factor.

Paul N8CKV also a member of the N.R.R.A. 145.23 2m repeater asked what the members thought of a reciprical "Phone Patch" privilege, which would allow members from both groups to use the others phone patch. This was rejected at this time by the Board of Directors during their meeting. The reason was due to the "control" problems which could exist, not knowing who could and couldn't use the phone-patch.

Glenn WD8OMW arrived, so the Treasurers Report was given and passed. Rick than announced the next North Coast-Oscar10 Gateway Operation on October 26. This gateway would also be linked with the L.E.A.R.A. 146.76 repeater.

The motion was made to adjourn, seconded and the meeting closed. 26 members and guests attended. Next meeting was announced, December 13.

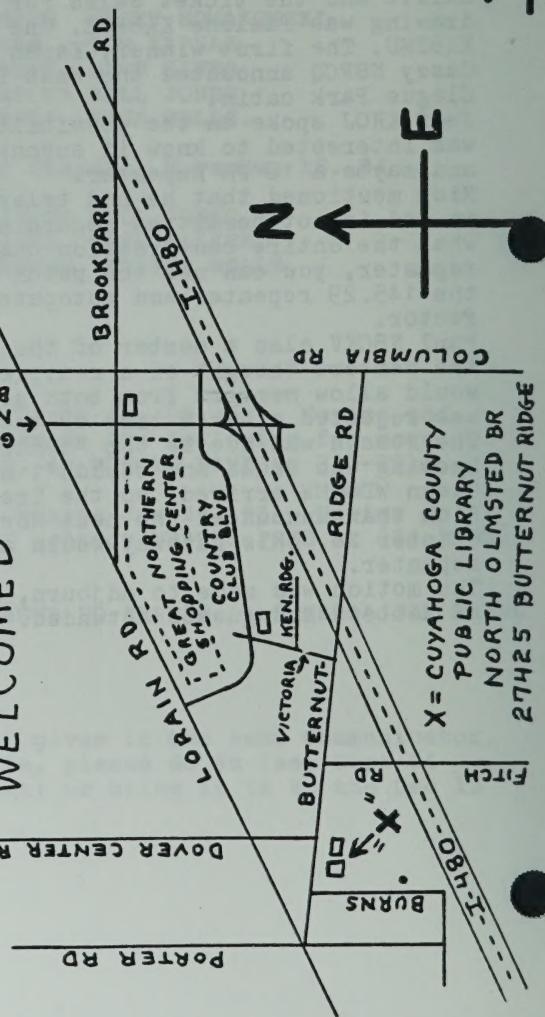
DE N8ETY



North Coast ARC Meeting

EVERYONE
WELCOMED

"TALK-IN"
ON 145.290



DEC 13, 84

THURSDAY 7:30 P.M.

S A R E X
(Shuttle Amateur Radio Experiment)

The following information was provided by Art Anzic, K8BVI, who recently visited NASA-JSC (Johnson Space Center) in Houston, Texas. The information was received from Lou McFadin, W5DID, who is the JSC co-ordinator for SAREX. The available experiment details are as follows:

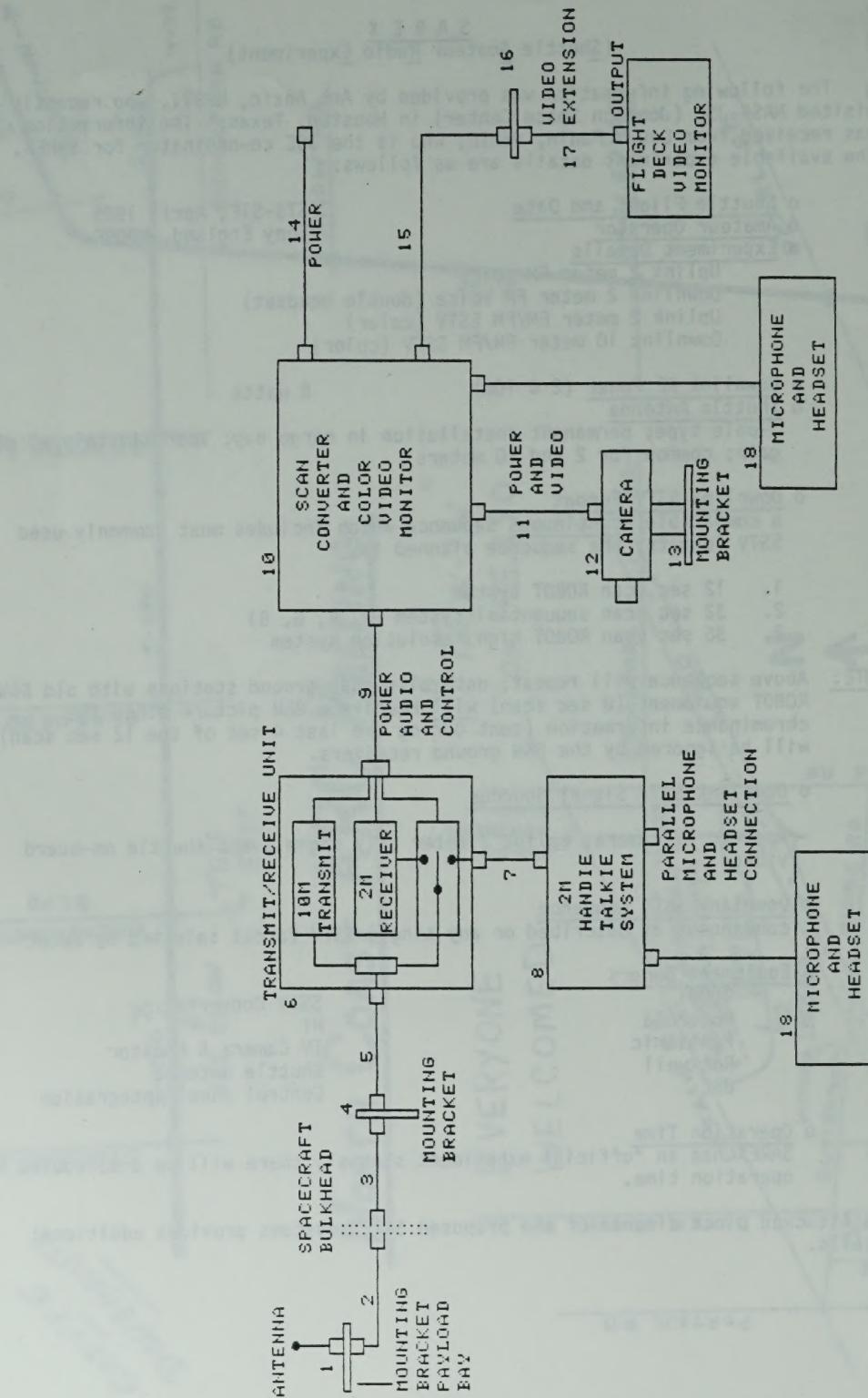
- o Shuttle Flight and Date STS-51F, April 1985
- o Amateur Operator Tony England, WØORE
- o Experiment Details
 - Uplink 2 meter FM voice
 - Downlink 2 meter FM voice (double headset)
 - Uplink 2 meter FM/FM SSTV (color)
 - Downlink 10 meter FM/FM SSTV (color)
- o Downlink RF Power (2 & 10m) 5 watts
- o Shuttle Antenna
 - J-pole type; permanent installation in cargo bay; approximately -6 dB gain; common for 2 and 10 meters
- o Downlink SSTV Format
 - a compatible, continuous sequence which includes most commonly used SSTV formats; the sequence planned is:
 1. 12 sec scan ROBOT system
 2. 32 sec scan sequential system (R, R, G, B)
 3. 36 sec scan ROBOT high resolution system

NOTE: Above sequence will repeat; note also that ground stations with old B&W ROBOT equipment (8 sec scan) will receive a B&W picture since the chrominance information (sent during the last 4 sec of the 12 sec scan) will be ignored by the B&W ground receivers.

- o Downlink SSTV Signal Sources
 - Amateur TV camera, uplink 2 meter SSTV signals and shuttle on-board video.
- o Downlink SSTV Sequence
 - continuous as described or any single SSTV format selected by WØORE
- o Equipment Donors

ROBOT	SSTV Converter
Motorola	HT
Panasonic	TV Camera & Monitor
Rockwell	Shuttle antenna
JSC	Control panel/integration
- o Operation Time
 - SAREX has an "official experiment status"; there will be a scheduled operation time.

Attached block diagram of the proposed SAREX systems provides additional details.



NOVEMBER 8, 1984

SAREX

TUESDAY 7:30 AM

DEC 3, 84

RESONANT CIRCUITS

This is the second in a series of articles on Resonant Circuits. All articles are excerpts from the book "RF Circuit Design", written by a fellow ham, Chris Bowick (WD4C). The book is published by Howard Sams & Co. Verbal permission has been given for reprints.

RESONANCE (LOSSLESS COMPONENTS)

What is resonance? What causes it to occur, and how can it be used to best advantage? Using voltage division, whenever a shunt element of impedance Z_p is placed across the output of a generator with internal resistance R_s , fig.4, the maximum output voltage available from this circuit is:

$$V_{out} = \frac{Z_p}{R_s + Z_p} (V_{in})$$

V_{out} is always less than V_{in} . If Z_p varies with frequency, such as would occur with capacitive or inductive reactance, then V_{out} is also frequency dependent and the ratio of V_{out} to V_{in} , which is the gain (or in this case, loss) of the circuit, is also frequency dependent. Let's take, for example, a 25 pF capacitor as the shunt element (fig.5A) and plot the function V_{out}/V_{in} in dB versus frequency, where we have:

$$\frac{V_{out}}{V_{in}} = 20 \log_{10} \frac{X_c}{R_s + X_c}$$

Where $\frac{V_{out}}{V_{in}}$ = loss in dB

R_s = source resistance

$$X_c = \text{capacitive reactance} = \frac{1}{j\omega C}$$

$(j\omega C = 2\pi F C)$

The plot of this equation in fig. 5b. Note that loss increases as the frequency increases; thus we have formed a simple lowpass filter. Notice also that the attenuation slope eventually settles down to the rate of 6 dB for every octave (doubling) increase in frequency, (also called 6 dB "roll-off"). This is due to the

$V_{\text{OUT}}/V_{\text{IN}}$ = THE LOSS IN dB.
 R_s = THE SOURCE RESISTANCE
 X_C = THE REACTANCE OF THE CAPACITOR.

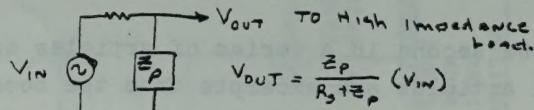
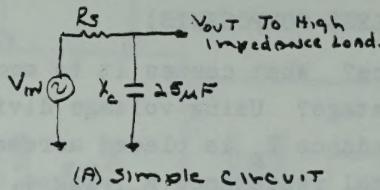
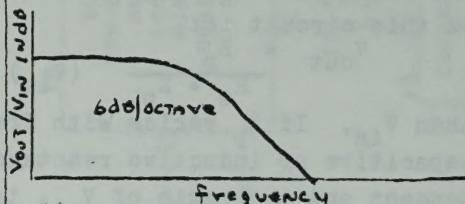


fig. 4. Voltage division rule.

fig. 4



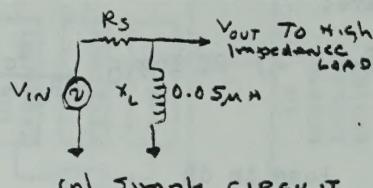
(A) SIMPLE CIRCUIT



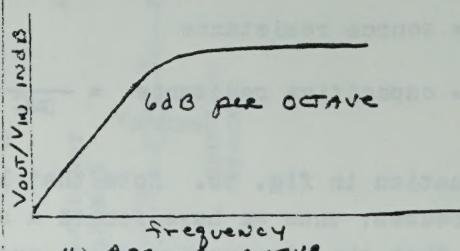
(b) RESPONSE CURVE
 fig. 5 - FREQ. RESPONSE OF A SIMPLE
 RC LOWPASS FILTER.

fig. 5 a

5 b.



(A) SIMPLE CIRCUIT



(b) RESPONSE CURVE
 fig. 6 SIMPLE HIGH PASS FILTER.

fig. 6 a

6 b.

single reactive element in the circuit. This attenuation slope increases an additional 6 dB for each significant reactive element that we insert into the circuit.

If we now delete the capacitor from the circuit and insert a 0.05 μ H inductor in its place, we obtain the circuit of fig.6a and the plot of fig.6b, where

$$\frac{V_{\text{out}}}{V_{\text{in}}} = 20 \log_{10} \frac{X_L}{R_s + X_L}$$

R_s = source resistance

X_L = coil reactance = $j\omega L$

Here we have formed a simple highpass filter with an attenuation slope of 6dB per octave.

Simple calculations using the basic voltage division formula enabled us to plot the frequency response of two separate and opposite reactive components. But what happens if we place both the inductor and capacitor across the generator simultaneously? This case is no more difficult to analyze than the previous two circuits. In fact, at any frequency, we can simply apply the basic voltage division rule as before. The only difference here is that we now have two reactive parallel components to deal with instead of one. The circuit is shown in fig. 7a and its response is plotted in fig. 7b. Notice that as we approach the resonant frequency of the tuned circuit the slope of the resonance curve increases. This occurs because two significant reactances are present and each one is changing at the rate of 6dB per octave, with slopes in opposite directions. As we move away from resonance in either direction, however, the curve again approaches a 6 dB/octave slope because again only one reactance becomes significant. The other reactance presents a very high impedance to the circuit at these frequencies and the circuit behaves as if that reactance were no longer there.

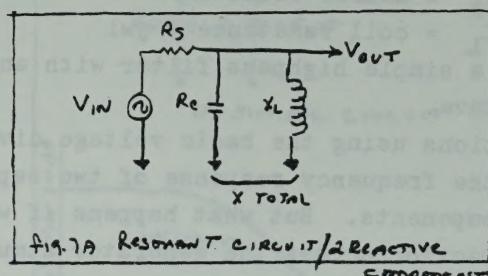


Fig. 7a

fig. 7a Resonant circuit/2 reactive components

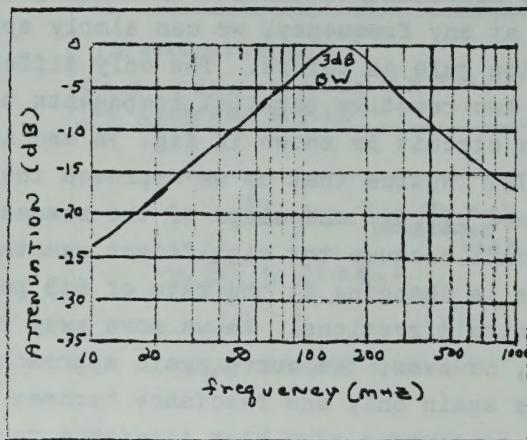
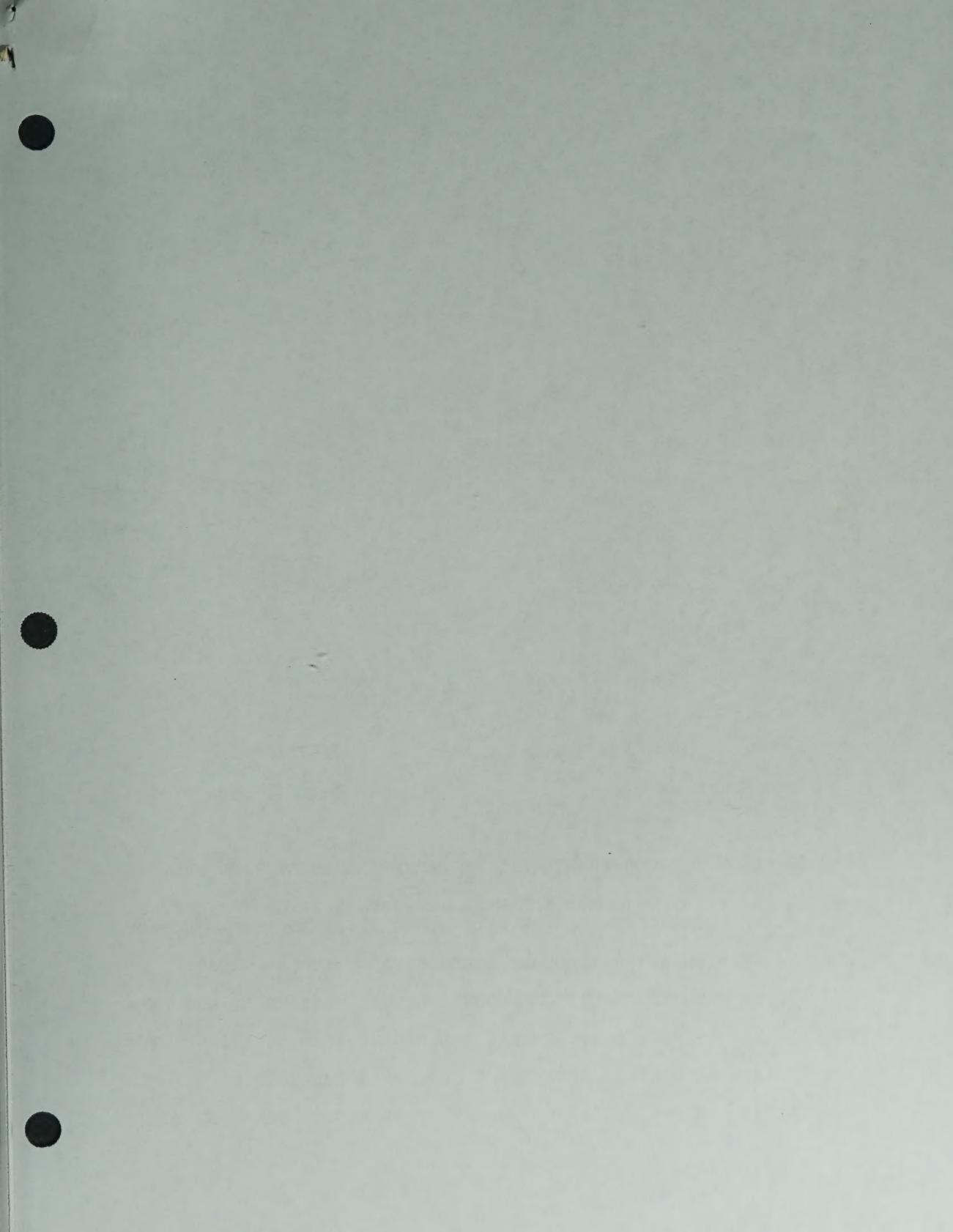


Fig. 7b

Fig. 7b. Freq. Response of an LC Resonant Circuit



Time Sensitive Info Inside - OPEN AT ONCE

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T H E R E I S T I M E S E N S I T I V E I N F O I N S I D E

- - - - O P E N A T O N C E - - - -

DEC 02, 84 - TELECONFERENCE NET RE PACKET RADIO AT 7:00 PM

DEC 03, 84 - CUT OFF DATE FOR NCARC CHRISTMAS BANQUET TICKET PURCHASE
(TICKETS CAN BE OBTAINED ONLY BY ADVANCE PURCHASE)

DEC 08, 84 - CHRISTMAS BANQUET (GARGUS HALL, LORAIN, OHIO)

DEC 09, 84 - NORTH COAST BOARD OF DIRECTORS MEETING AT WD8OMW's

DEC 13, 84 - NORTH COAST GENERAL MEMBERSHIP MEETING, N. OLMSTED

DEC 25, 84 - CHRISTMAS DAY (MERRY CHRISTMAS EVERYBODY)

JAN 01, 85 - HAPPY NEW YEAR AND MAY IT BE A GOOD YEAR FOR YOU